

Claims

What is 'claimed' is:

1. A method for generating an ornamental fish, comprising steps of (a) generating a transgenic fish containing one or more fused fluorescent gene; (b) breeding the transgenic fish with fish with different phenotype or pattern; and (c) screening the new transgenic progenies showing different phenotype or pattern from their parents.
2. The method as set forth in claim 1, wherein the transgenic fish and the fish with different phenotype or pattern are the same or different family, genus or species.
3. The method as set forth in claim 2, wherein the transgenic fish and the fish with different phenotype or pattern are different genus or species.
4. The method as set forth in claim 3, wherein the transgenic fish and the fish with different phenotypes or patterns are different species.
5. The method as set forth in claim 4, wherein the fluorescent gene is selected from the group consisting of green fluorescent protein (GFP), modified green fluorescent protein, enhanced green fluorescent protein (EGFP), red fluorescent protein (RFP), enhanced red fluorescent protein (ERFP), blue fluorescent protein (BFP), enhanced blue fluorescent protein (EBFP), yellow fluorescent protein (YFP), enhanced yellow fluorescent protein (EYFP), cyan fluorescent protein (CFP), and enhanced cyan fluorescent protein (ECFP).
6. The method as set forth in claim 5, wherein the fluorescent gene is selected from the group consisting of green fluorescent protein (GFP), modified green fluorescent protein, enhanced green fluorescent protein (EGFP), red fluorescent protein (RFP), enhanced red fluorescent protein (ERFP), blue fluorescent protein (BFP) and enhanced blue fluorescent protein (EBFP).
7. The method as set forth in claim 6, wherein the fluorescent gene is selected from the group consisting of green fluorescent protein (GFP), modified green fluorescent protein, enhanced green fluorescent protein (EGFP), red fluorescent protein (RFP) and enhanced red fluorescent protein (ERFP).
8. The method as set forth in claim 1, wherein the phenotype of the fish is selected from the group consisting of colors, body shapes, body sizes, body transparent levels, grain colors,

- stripe colors, fin shapes, fin sizes, tail shape, tail sizes, eye color, eye shapes; and any observable phenotypic differences from those of fluorescent mate.
9. The method as set forth in claim 8, wherein the phenotype of the fish is selected from the group consisting of colors, body shapes, body transparent levels, grain colors and stripe colors.
10. The method as set forth in claim 1, wherein the pattern of the fish is selected from the group consisting of grain patterns, stripe patterns and swimming patterns.
11. The method as set forth in claim 4, wherein the fish is selected from the group consisting of Cichlidae, Fighting fish, Catfish, Characidae, Cyprinidae and Killifish.
12. The method as set forth in claim 11, wherein the Cichlidae is *Pseudotropheus*, *Cichlasoma*, *Apistogramma*, *Pterophyllum* or *Symohysodon*.
13. The method as set forth in claim 11, wherein the Fighting fish is *Betta* or *Macropodus*.
14. The method as set forth in claim 11, wherein the Catfish is *Corydoras*, *Ancistrus* or *Pterygoplichthys*.
15. The method as set forth in claim 11, wherein the Characidae is Tetras or *Carnegiella*.
16. The method as set forth in claim 11, wherein the Cyprinidae is *Cyprinus*, *Brachydanio*(zebrafish), *Danio* or *Carassius*.
17. The method as set forth in claim 11, wherein the Killifish is Medaka, Rivulines or Livebearing Toothcarps.
18. The method as set forth in claim 16, wherein the zebrafish is selected from the group consisting of *D. acrostomus*, *D. aequipinnatus*, *D. malabaricus*, *D. albolineatus*, *D. annandalei*, *D. apogon*, *D. apopyris*, *D. assamensis*, *D. choprae*, *D. chrysotaeniatus*, *D. dangila*, *D. devario*, *D. fangfangae*, *D. frankei*, *D. fraseri*, *D. gibber*, *D. interruptus*, *D. kakhienensis*, *D. kyathit*, *D. laoensis*, *D. leptos*, *D. maetaengensis*, *D. malabaricus*, *D. naganensis*, *D.*

neilgherriensis, *D. nigrofasciatus*, *D. pathirana*, *D. regina*, *D. rerio*, *D. roseus*, *D. salmonata*, *D. shanensis*, *D. spinosus*, *Brachydanio frankei* and *Brachydanio* sp.

19. The method as set forth in claim 17, wherein the medaka is selected from the group consisting of *Oryzias javanicus*, *Oryzias latipes*, *Oryzias nigrimas*, *Oryzias luzonensis*, *Oryzias profundicola*, *Oryzias matanensis*, *Oryzias mekongensis*, *Oryzias minutillus*, *Oryzias melastigma*, *O. curvinotus*, *O. celebensis*, *X. oophorus*, and *X. saracinorum*.

20. The method as set forth in claim 1, wherein the new transgenic progenies is selected from the group consisting of *Cichlasoma*, TK1 red x *O. curvinotus*, TK1 green x *O. curvinotus*, TK2 red x *Brachydanio frankei*, TK2 red x *Brachydanio* sp, TK2 green x *Brachydanio frankei*, TK2 green x *Brachydanio* sp and Purple Zebra Fish..

21. The method as set forth in claim 20, wherein the new transgenic progenies is TK1 red x *O. curvinotus*, TK1 green x *O. curvinotus*, TK2 red x *Brachydanio frankei*, TK2 red x *Brachydanio* sp and Purple Zebra Fish.

22. The method as set forth in claim 21, wherein the new transgenic progenies is TK2 red x *Brachydanio frankei* or TK2 red x *Brachydanio* sp.

23. The ornamental fish which is prepared according to Claim 1.

24. The fish as set forth in claim 23 which is TK1 red x *O. curvinotus*, TK1 green x *O. curvinotus*, TK2 red x *Brachydanio frankei*, TK2 red x *Brachydanio* sp or Purple Zebra Fish.